

## CLAIMS

1. An electrode structure for electrolysis cell divided by a separator into an anodic compartment and a cathodic compartment, comprising at least one movable surface suited to be put in contact with the separator and provided with a thicker component and a thinner component overlapped thereto, the thicker  
5 component being generally planar and the thinner component being a thin sheet provided with openings or a thin mesh of wires, characterised in that only said thicker component is provided with a catalytic coating.
2. The structure of claim 1 characterised by being an anodic structure  
10 wherein the separator is a diaphragm or membrane for chlor-alkali cell and said catalytic coating comprises a catalyst for chlorine evolution.
3. The structure of claims 1 or 2 wherein said component of higher thickness consists of a multiplicity of vertical and parallel plates.
4. The structure of claim 3 wherein said vertical plates have width comprised  
15 between 2 and 10 millimetres, thickness comprised between 0.3 and 2 millimetres and spacing comprised between 2 and 10 millimetres.
5. The structure of claims 1 or 2 wherein said component of higher thickness consists of a multiplicity of horizontal and parallel plates.
6. The structure of claim 5 wherein said plates have a thickness of at least  
20 0.3 millimetres and are mutually spaced apart by at least 1 millimetre.
7. The structure of claim 5 wherein said horizontal plates are arranged in parallel and off-set rows spaced apart by 1 to 5 millimetres, each of said plates being 5 to 30 millimetre long, said plates being obtained by deformation of a 0.3 to 2 millimetre thick sheet.
- 25 8. The structure of claims 1 or 2 wherein said component of higher thickness consists of a sheet provided with openings.
9. The structure of claim 8 wherein said sheet provided with openings is an unflattened expanded sheet.
10. The structure of the previous claims wherein said thin sheet provided with  
30 openings is a flattened expanded sheet or a perforated sheet or a sintered porous layer.
11. The structure of claim 10 wherein said flattened expanded sheet is 0.2 to

0.8 millimetre thick and is provided with rhomboidal openings with major diagonal comprised between 3 and 7 millimetres and minor diagonal comprised between 1 and 5 millimetres.

12. The structure of the previous claims wherein said thin sheet provided with openings has a ratio between opening clearance and overall geometric area at least equal to 0.5.

13. The structure of claim 12 wherein said ratio between opening clearance and overall geometric area is at least equal to 0.9.

14. The structure of the previous claims wherein said thin sheet provided with openings is made of a corrosion-resistant metal or of a polymeric material stable at the operating conditions of said cell.

15. The structure of claim 14 wherein said corrosion-resistant metal consists of titanium or titanium alloy.

16. The structure of claim 14 wherein said polymeric material consists of an optionally hydrophilised fluorinated polymer.

17. The structure of the previous claims wherein said thin sheet provided with openings or thin mesh of wires is secured to said component of higher thickness.

18. The structure of the previous claims wherein said thin sheet provided with openings or thin mesh of wires is placed in contact with the separator.

19. A chlor-alkali membrane or diaphragm cell comprising at least a structure of the previous claims.

20. A chlor-alkali electrolysis process carried out in the cell of claim 19 characterised by having a voltage not higher than 3 Volts at a current density of 2500 A/m<sup>2</sup> and an oxygen content in chlorine non higher than 2%.

21. An electrode structure for electrolysis cell substantially as herein described with reference to the attached drawings.